

p. 104

#12

$$\begin{aligned} a) & \left(+\frac{1}{2}\right) - \left(-\frac{1}{3}\right) \\ &= \left(+\frac{3}{6}\right) - \left(-\frac{2}{6}\right) \\ &= +\frac{3}{6} + \left(+\frac{2}{6}\right) \\ &= \frac{5}{6} // \end{aligned}$$

$$\begin{aligned} b) & \left(-2\frac{1}{2}\right) - \left(-1\frac{1}{4}\right) \\ &= \left(-\frac{5}{2}\right) - \left(-\frac{5}{4}\right) \\ &= \left(-\frac{10}{4}\right) - \left(-\frac{5}{4}\right) \\ &= \left(-\frac{10}{4}\right) + \left(+\frac{5}{4}\right) \\ &= -\frac{5}{4} \end{aligned}$$

$$= -1\frac{1}{4} //$$

$$\begin{aligned} c) & \left(+\frac{5}{6}\right) - \left(+\frac{5}{3}\right) \\ &= \left(+\frac{5}{6}\right) - \left(+\frac{10}{6}\right) \\ &= \left(+\frac{5}{6}\right) + \left(-\frac{10}{6}\right) \\ &= -\frac{5}{6} // \end{aligned}$$

$$\begin{aligned} d) & \left(-\frac{3}{4}\right) - \left(-\frac{5}{6}\right) \\ &= \left(-\frac{3}{4}\right) + \left(+\frac{5}{6}\right) \\ &= \left(-\frac{9}{12}\right) + \left(+\frac{10}{12}\right) \\ &= +\frac{1}{12} // \end{aligned}$$

$$\begin{aligned} e) & \left(-\frac{3}{5}\right) - \left(-\frac{7}{15}\right) \\ &= \left(-\frac{9}{15}\right) + \left(+\frac{7}{15}\right) \\ &= -\frac{2}{15} // \end{aligned}$$

$$\begin{aligned} f) & \left(+\frac{7}{8}\right) - \left(-\frac{2}{3}\right) \\ &= \left(+\frac{21}{24}\right) + \left(+\frac{16}{24}\right) \\ &= \frac{37}{24} \\ &= 1\frac{13}{24} // \end{aligned}$$

P.104 #12 #13

$$g) \left(-\frac{2}{3}\right) - \left(+1\frac{3}{4}\right)$$

$$= \left(-\frac{2}{3}\right) - \left(+\frac{7}{4}\right)$$

$$= \left(-\frac{8}{12}\right) - \left(+\frac{21}{12}\right)$$

$$= \left(-\frac{8}{12}\right) + \left(-\frac{21}{12}\right)$$

$$= -\frac{29}{12}$$

$$= -2\frac{5}{12}$$

$$\#13 a) \left(-\frac{5}{6}\right) - \left(-\frac{1}{3}\right)$$

$$= \left(-\frac{5}{6}\right) + \left(+\frac{2}{6}\right)$$

$$= -\frac{3}{6}$$

$$= -\frac{1}{2}$$

$$13 c) \left(-\frac{2}{3}\right) - \left(+\frac{1}{2}\right)$$

$$= \left(-\frac{4}{6}\right) + \left(-\frac{3}{6}\right)$$

$$= -\frac{7}{6}$$

$$= -1\frac{1}{6}$$

$$h) \left(+\frac{3}{8}\right) - \left(+\frac{5}{6}\right)$$

$$= \left(+\frac{9}{24}\right) + \left(-\frac{20}{24}\right)$$

$$= -\frac{11}{24}$$

$$\#13 b) \left(+\frac{3}{4}\right) - \left(-\frac{4}{5}\right)$$

$$= \left(+\frac{3}{4}\right) + \left(+\frac{4}{5}\right)$$

$$= \left(+\frac{15}{20}\right) + \left(+\frac{16}{20}\right)$$

$$= \frac{31}{20}$$

$$= 1\frac{11}{20}$$

$$13 d) \left(+\frac{3}{5}\right) - \left(+\frac{2}{3}\right)$$

$$= \left(+\frac{9}{15}\right) + \left(-\frac{10}{15}\right)$$

$$= -\frac{1}{15}$$

$$13 e) \left(-2\frac{3}{5}\right) - \left(+1\frac{2}{5}\right)$$

$$= \left(-\frac{13}{5}\right) + \left(-\frac{7}{5}\right)$$

$$= -\frac{20}{5}$$

$$= -4$$

p. 104 # 13

13f)

$$\begin{aligned} & \left(+2 \frac{4}{7}\right) - \left(-2 \frac{1}{14}\right) \\ &= \left(+\frac{18}{7}\right) + \left(+\frac{29}{14}\right) \\ &= \left(+\frac{36}{14}\right) + \left(+\frac{29}{14}\right) \\ &= \frac{65}{14} \\ &= 4 \frac{9}{14} \end{aligned}$$

13g) $\left(-3 \frac{1}{8}\right) - \left(-1 \frac{3}{4}\right)$

$$\begin{aligned} &= \left(-\frac{25}{8}\right) - \left(-\frac{7}{4}\right) \\ &= \left(-\frac{25}{8}\right) + \left(+\frac{14}{8}\right) \\ &= -\frac{11}{8} \\ &= -1 \frac{3}{8} \end{aligned}$$

13h) $\left(-6 \frac{2}{9}\right) - \left(+7 \frac{2}{9}\right)$

$$= \left(-6 \frac{2}{9}\right) + \left(-7 \frac{2}{9}\right)$$

$$= (-6) + (-7) + \left(-\frac{2}{9}\right) + \left(-\frac{2}{9}\right)$$

$$= (-13) + \left(-\frac{4}{9}\right)$$

$$= -13 \frac{4}{9}$$

Otra forma
de resolver:

Agrupando los
enteros.

P. 109 # 8

$$a) \frac{2}{3} - \left(\frac{1}{2} - \frac{1}{3} \right) - \left(\frac{3}{2} - \frac{1}{6} \right)$$

$$= \frac{2}{3} - \frac{1}{2} + \frac{1}{3} - \frac{3}{2} + \frac{1}{6}$$

$$= \frac{2}{3} + \frac{1}{3} + \frac{1}{6} - \frac{1}{2} - \frac{3}{2}$$

$$= \frac{4}{6} + \frac{2}{6} + \frac{1}{6} - \frac{3}{6} - \frac{9}{6}$$

$$= \frac{4}{6} - \frac{12}{6}$$

$$= -\frac{5}{6}$$

$$b) -\frac{4}{5} - \left(-\frac{3}{4} + \frac{1}{5} \right) - \left(-\frac{1}{4} \right)$$

$$= -\frac{4}{5} + \frac{3}{4} - \frac{1}{5} + \frac{1}{4}$$

$$= +\frac{3}{4} + \frac{1}{4} - \frac{4}{5} - \frac{1}{5}$$

$$= +\frac{15}{20} + \frac{5}{20} - \frac{16}{20} - \frac{4}{20}$$

$$= \frac{20}{20} - \frac{20}{20}$$

$$= 0$$

P. 109 #8

$$8c) - \left(1\frac{1}{2} - 2\frac{1}{5} \right) + \left(\frac{3}{4} - \frac{7}{10} \right)$$

$$= -\frac{3}{2} + \frac{11}{5} + \frac{3}{4} - \frac{7}{10}$$

$$= \frac{11}{5} + \frac{3}{4} - \frac{3}{2} - \frac{7}{10}$$

$$= \frac{44}{20} + \frac{15}{20} - \frac{30}{20} - \frac{14}{20}$$

$$= \frac{59}{20} - \frac{44}{20}$$

$$= \frac{15}{20}$$

$$= \frac{3}{4}$$

$$8d) -3\frac{1}{2} + \frac{1}{3} + \left(2\frac{1}{5} - \frac{5}{6} - 3\frac{1}{6} \right) + \left(-\frac{1}{2} \right)$$

$$= -\frac{7}{2} + \frac{1}{3} + \frac{11}{5} - \frac{5}{6} - \frac{19}{6} - \frac{1}{2}$$

$$= +\frac{1}{3} + \frac{11}{5} - \frac{7}{2} - \frac{5}{6} - \frac{19}{6} - \frac{1}{2}$$

$$= +\frac{10}{30} + \frac{66}{30} - \frac{105}{30} - \frac{95}{30} - \frac{15}{30}$$

$$= \frac{76}{30} - \frac{215}{30}$$

$$= -\frac{139}{30}$$

$$= -4\frac{19}{30}$$

p. 104 # 13

13f)

$$\begin{aligned} & \left(+2\frac{4}{7}\right) - \left(-2\frac{1}{14}\right) \\ &= \left(+\frac{18}{7}\right) + \left(+\frac{29}{14}\right) \\ &= \left(+\frac{36}{14}\right) + \left(+\frac{29}{14}\right) \end{aligned}$$

$$= \frac{65}{14}$$

$$= 4\frac{9}{14}$$

$$13g) \left(-3\frac{1}{8}\right) - \left(-1\frac{3}{4}\right)$$

$$= \left(-\frac{25}{8}\right) - \left(-\frac{7}{4}\right)$$

$$= \left(-\frac{25}{8}\right) + \left(+\frac{14}{8}\right)$$

$$= -\frac{11}{8}$$

$$= -1\frac{3}{8}$$

$$13h) \left(-6\frac{2}{9}\right) - \left(+7\frac{2}{9}\right)$$

$$= \left(-6\frac{2}{9}\right) + \left(-7\frac{2}{9}\right)$$

$$= (-6) + (-7) + \left(-\frac{2}{9}\right) + \left(-\frac{2}{9}\right)$$

$$= (-13) + \left(-\frac{4}{9}\right)$$

$$= -13\frac{4}{9}$$

Otra forma
de resolver:

Agrupando los
enteros,

P.104 #12 #13

$$\begin{aligned}
 8) \quad & \left(-\frac{2}{3}\right) - \left(+1\frac{3}{4}\right) \\
 &= \left(-\frac{2}{3}\right) - \left(+\frac{7}{4}\right) \\
 &= \left(-\frac{8}{12}\right) - \left(+\frac{21}{12}\right) \\
 &= \left(-\frac{8}{12}\right) + \left(-\frac{21}{12}\right) \\
 &= -\frac{29}{12}
 \end{aligned}$$

$$= -2\frac{5}{12}$$

$$\begin{aligned}
 \#13 \ a) \quad & \left(-\frac{5}{6}\right) - \left(-\frac{1}{3}\right) \\
 &= \left(-\frac{5}{6}\right) + \left(+\frac{2}{6}\right) \\
 &= -\frac{3}{6} \\
 &= -\frac{1}{2}
 \end{aligned}$$

$$\begin{aligned}
 13 \ c) \quad & \left(-\frac{2}{3}\right) - \left(+\frac{1}{2}\right) \\
 &= \left(-\frac{4}{6}\right) + \left(-\frac{3}{6}\right) \\
 &= -\frac{7}{6} \\
 &= -1\frac{1}{6}
 \end{aligned}$$

$$\begin{aligned}
 8) \quad & \left(+\frac{3}{8}\right) - \left(+\frac{5}{6}\right) \\
 &= \left(+\frac{9}{24}\right) + \left(-\frac{20}{24}\right) \\
 &= -\frac{11}{24}
 \end{aligned}$$

$$\begin{aligned}
 \#13b) \quad & \left(+\frac{3}{4}\right) - \left(-\frac{4}{5}\right) \\
 &= \left(+\frac{3}{4}\right) + \left(+\frac{4}{5}\right) \\
 &= \left(+\frac{15}{20}\right) + \left(+\frac{16}{20}\right) \\
 &= \frac{31}{20} \\
 &= 1\frac{11}{20}
 \end{aligned}$$

$$\begin{aligned}
 13d) \quad & \left(+\frac{3}{5}\right) - \left(+\frac{2}{3}\right) \\
 &= \left(+\frac{9}{15}\right) + \left(-\frac{10}{15}\right) \\
 &= -\frac{1}{15}
 \end{aligned}$$

$$\begin{aligned}
 13e) \quad & \left(-2\frac{3}{5}\right) - \left(+1\frac{2}{5}\right) \\
 &= \left(-\frac{13}{5}\right) + \left(-\frac{7}{5}\right) \\
 &= -\frac{20}{5} \\
 &= -4
 \end{aligned}$$

p. 104

#12

$$\begin{aligned}
 a) \quad & \left(+\frac{1}{2}\right) - \left(-\frac{1}{3}\right) \\
 &= \left(+\frac{3}{6}\right) - \left(-\frac{2}{6}\right) \\
 &= +\frac{3}{6} + \left(+\frac{2}{6}\right) \\
 &= \frac{5}{6} //
 \end{aligned}$$

$$\begin{aligned}
 b) \quad & \left(-2\frac{1}{2}\right) - \left(-1\frac{1}{4}\right) \\
 &= \left(-\frac{5}{2}\right) - \left(-\frac{5}{4}\right) \\
 &= \left(-\frac{10}{4}\right) - \left(-\frac{5}{4}\right) \\
 &= \left(-\frac{10}{4}\right) + \left(+\frac{5}{4}\right) \\
 &= -\frac{5}{4} \\
 &= -1\frac{1}{4} //
 \end{aligned}$$

$$\begin{aligned}
 c) \quad & \left(+\frac{5}{6}\right) - \left(+\frac{5}{3}\right) \\
 &= \left(+\frac{5}{6}\right) - \left(+\frac{10}{6}\right) \\
 &= \left(+\frac{5}{6}\right) + \left(-\frac{10}{6}\right) \\
 &= -\frac{5}{6} //
 \end{aligned}$$

$$\begin{aligned}
 d) \quad & \left(-\frac{3}{4}\right) - \left(-\frac{5}{6}\right) \\
 &= \left(-\frac{3}{4}\right) + \left(+\frac{5}{6}\right) \\
 &= \left(-\frac{9}{12}\right) + \left(+\frac{10}{12}\right) \\
 &= +\frac{1}{12} //
 \end{aligned}$$

$$\begin{aligned}
 e) \quad & \left(-\frac{3}{5}\right) - \left(-\frac{7}{15}\right) \\
 &= \left(-\frac{9}{15}\right) + \left(+\frac{7}{15}\right) \\
 &= -\frac{2}{15} //
 \end{aligned}$$

$$\begin{aligned}
 f) \quad & \left(+\frac{7}{8}\right) - \left(-\frac{2}{3}\right) \\
 &= \left(+\frac{21}{24}\right) + \left(+\frac{16}{24}\right) \\
 &= \frac{37}{24} \\
 &= 1\frac{13}{24} //
 \end{aligned}$$